

Claim Amendments:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A process for producing long lengths of a layered superconductor comprising:
 - a. providing a buffered metal substrate tape coated with precursors of $\text{REBa}_2\text{Cu}_3\text{O}_7$ where RE is a rare earth;
 - b. translating the tape through a precursor conversion and film-growth-zone in a process chamber;
 - c. introducing oxygen and water vapor through a showerhead into the precursor conversion and film-growth-zone while translating the tape; and
 - d. heating the coated-substrate-tape to a temperature in the range between about 700°C. to about 850°C.;where the pressure in the process chamber is in the range between about 1 Torr to about 760 Torr and where the substrate resides in the ~~process-~~ precursor conversion zone for a period of time sufficient to convert the precursors to a superconducting coating epitaxial to the buffer layer.
2. (Original) The process of claim 1 where the substrate is selected from the group consisting of stainless steel and nickel alloys.
3. (Original) The process of claim 1 where the substrate is biaxially textured.
4. (Original) The process of claim 1 where the buffer on the metal substrate tape is selected from the group consisting of YSZ, CeO_2 , MgO , SrTiO_3 , LaMnO_3 , SrRuO_3 , Y_2O_3 , Gd_2O_3 , LaSrMnO_3 and combinations thereof.
5. (Original) The process of claim 1 where the pressure in the process chamber is in the range between about 10 Torr to about 760 Torr.

6. (Canceled)

7. (Original) The process of claim 1 where the atmosphere in the process chamber has a dew point between about 40°C. to about 80°C.

8. (Currently Amended) The process of claim 1 where ~~[[the]]~~ a partial pressure of water vapor in the process chamber is between about 1 Torr and about 50 Torr.

9. (Currently Amended) The process claim 1 where ~~portion of the oxygen contained in is~~ introduced through the showerhead with a carrier gas, an oxygen content in the carrier gas ranging ~~[[ranges]]~~ between about 10 ppm and 10%.

10. (Currently Amended) The process of claim 1 where ~~[[the]]~~ a partial pressure of the oxygen and water vapor is substantially consistent throughout the precursor conversion and film growth zone.

11. (Currently Amended) The process of claim 1 where the distribution of ~~carrier gas containing the~~ oxygen and water vapor is uniform throughout the precursor conversion and film growth zone.

12. (Currently Amended) ~~The process of claim 1 wherein the oxygen and water vapor are introduced into the precursor conversion and film growth zone through a A~~ process for producing long lengths of a layered superconductor comprising:
a. providing a buffered metal substrate tape coated with precursors of REBa₂Cu₃O₇ where RE is a rare earth;
b. translating the tape through a precursor conversion zone in a process chamber;
c. introducing oxygen and water vapor through a showerhead into the precursor conversion zone while translating the tape, the showerhead having a width at least as wide as the sum of the widths of the translating tapes plus the sum of the distances between each of the translating tapes and having a length at least as great as the width; and
d. heating the to a temperature in the range between about 700°C. to about 850°C.;

where the pressure in the process chamber is in the range between about 1 Torr to about 760 Torr and where the substrate resides in the precursor conversion zone for a period of time sufficient to convert the precursors to a superconducting coating epitaxial to the buffer layer.

13. (Currently Amended) The process of claim 1 wherein reaction by-products are removed from the process chamber by a pumping system located proximate to the precursor conversion and ~~film growth zone~~.

14. (Original) The process of claim 1 wherein the process chamber is a cold-wall chamber.

15. (Currently Amended) The ~~product of the process of claim 1~~, wherein the showerhead has a plurality of film openings through which the oxygen and water vapor pass.

16. (New) The process of claim 15, wherein the fine openings are evenly spaced.